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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,536	09/09/2005	Yoshihito Fukushima	267655US6PCT	7167

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EXAMINER	
HEYI, HENOK G	

ART UNIT	PAPER NUMBER
2627	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/534,536	FUKUSHIMA ET AL.	
	Examiner	Art Unit	
	HENOK G. HEYI	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 19 is objected to because of the following informalities: On the second line of claim 19, after the phrase "is selected so", applicant wrote "a". As it currently stands, the claim doesn't give the intended meaning but examiner interpreted and read the claim as "is selected so as to have..." for examining purposes. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Yamaga et al. US 2004/0257970 A1 (Yamaga hereinafter).

Regarding claim 1, Yamaga teaches a disc substrate having an eccentricity measuring area in which a groove area formed with spiral grooves and a planer mirror area are spatially alternately arranged (grooves comprising a pattern 8 of fine depressions and protrusions used for measuring the eccentricity, para [0037] and para [0054]).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-8 and 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaga et al. US 2004/0257970 A1 (Yamaga hereinafter) in view of Kadowaki et al. US 2005/0199778 A1 (Kadowaki hereinafter).

Regarding claims 2 and 16, Yamaga teaches a disc substrate according to claim 1, but Yamaga fails to teach an interval between the grooves in said groove area is selected in accordance with an optical system of a mechanical characteristics measuring apparatus which is used to measure an eccentricity amount and a fluctuation of a push-pull signal at one end and the other end of said groove formed spirally in said groove area. However, Kadowaki teaches that in accordance with the eccentricity of the optical recording medium, an offset fluctuation is caused in a tracking signal (see para [0247]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the eccentricity measurement system of Yamaga to be in accordance with fluctuation of tracking signals. The modification would have been obvious because of the benefit of achieving a stable tracking control as taught by Kadowaki (para [0209]).

Regarding claims 3 and 17, Yamaga teaches a disc substrate according to claim

2, but Yamaga fails to teach a width of said groove area and a width of said mirror area are selected in accordance with the optical system of said mechanical characteristics measuring apparatus which is used to measure the eccentricity amount. However, Kadowaki teaches that fluctuation in TE signal occurs due to different widths of grooves and since eccentricity is measured in accordance with fluctuation of tracking signals, they have correlation (see para [0227]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the eccentricity measurement system of Yamaga to be in accordance with widths of grooves and mirror area. The modification would have been obvious because of the benefit of achieving a stable tracking control when the groove widths are chosen to meet certain eccentricity requirements as taught by Kadowaki (para [0209])

Regarding claims 4 and 18, Yamaga teaches a disc substrate according to claim 2, but Yamaga fails to teach an interval between said grooves is selected so as to have a value in a range from 0.01 time or more to 0.25 time or less of a repetition interval of said groove area or said mirror area. However, Kadowaki teaches that the interval L in a direction orthogonal to the tracks between the main beam and the sub-beams is set to be larger than that described with reference to FIG. 3 in Embodiment 1, whereby the fluctuation in a TE signal amplitude can be reduced compared with the optical information apparatus of Embodiment 1 (see para [0180]). It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the interval between grooves. The modification would have been obvious because of the benefit of modifying the interval in getting a stable tracking operation.

Regarding claims 5 and 19, Kadowaki teaches a disc substrate according to claim 2, wherein an interval between said grooves is selected so as to have a value in a range from 0.01 time or more to 0.15 time or less of a repetition interval of said groove area or said mirror area (the interval L in a direction orthogonal to the tracks between the main beam and the sub-beams is set to be larger than that described with reference to FIG. 3 in Embodiment 1, whereby the fluctuation in a TE signal amplitude can be reduced compared with the optical information apparatus of Embodiment 1, para [0180]).

Regarding claims 6 and 20, Kadowaki teaches a disc substrata according to claim 4, wherein the repetition interval of said groove area or said mirror area is set to a value in a range from 0:7μm or more to 2.5μm or less (the interval L in a direction orthogonal to the tracks between the main beam and the sub-beams is set to be larger than that described with reference to FIG. 3 in Embodiment 1, whereby the fluctuation in a TE signal amplitude can be reduced compared with the optical information apparatus of Embodiment 1, para [0180]).

Regarding claims 7 and 21, Kadowaki teaches a disc substrate according to claim 4, wherein a width of said groove area is selected so as to have a value in a range from 0.2 time or more to 0.8 time or less of the repetition interval of said groove area or said mirror area (The case where the fluctuation in a TE signal amplitude occurs due to a positional error during formation of a groove has been described. However, the fluctuation in a TE signal amplitude occurs similarly even in the case where there is an error in the width and depth of a groove, and even in the vicinity of a boundary between

a track of an optical recording medium in which information is recorded and an unrecorded track, para [0227]).

Regarding claims 8 and 22, Kadowaki teaches a disc substrata according to claim 4, wherein a width of said groove area is equal to almost the half of the repetition interval of said groove area or said mirror area (The case where the fluctuation in a TE signal amplitude occurs due to a positional error during formation of a groove has been described. However, the fluctuation in a TE signal amplitude occurs similarly even in the case where there is an error in the width and depth of a groove, and even in the vicinity of a boundary between a track of an optical recording medium in which information is recorded and an unrecorded track, para [0227] see also para [0180]).

Regarding claim 14, Yamaga teaches an optical disc comprising: a disc substrate having an eccentricity measuring area in which a groove area formed with spiral grooves and a planer mirror area are spatially alternately arranged (grooves comprising a pattern 8 of fine depressions and protrusions used for measuring the eccentricity, para [0037] and para [0054]); but Yamaga fails to teach an information signal portion formed on one principal plane of said disc substrate; and a protective layer for protecting said information signal portion. However, Kadowaki teaches that a satisfactory TE signal can be obtained, which is less influenced by stray light reflected from a protective layer of an information recording medium (see, para [0317]).

Regarding claim 15, Kadowaki teaches an optical disc according to claim 14, wherein said protective layer has light transmittance and recording and/or reproduction of an information signal are/is executed by irradiating a laser beam from the side where

said protective layer is provided (a satisfactory TE signal can be obtained, which is less influenced by stray light reflected from a protective layer of an information recording medium, and an optical head apparatus capable of recording/reproducing information with high reliability can be provided, para [0317]).

Regarding claim 24, Yamaga teaches an optical disc according to claim 14, but Yamaga fails to teach that a protective layer is made of a light transmitting layer and formed by adhering a sheet onto one principal plane of the substrate on the side where said information signal portion has been formed. However, Kadowaki teaches that the beam 70 passes through a transparent protective layer with a thickness of 0.1 mm to be condensed onto a recording surface of an optical recording medium.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaga et al. US 2004/0257970 A1 (Yamaga hereinafter) in view of Kadowaki et al. US 2005/0199778 A1 (Kadowaki hereinafter) as applied to claim 4 above, and further in view of Watanabe et al. US 6,628,576 B1 (Watanabe hereinafter).

Regarding claims 9 and 23, Yamaga teaches a disc substrata according to claim 4, but both Yamaga and Kadowaki fail to teach a width of said eccentricity measuring area is selected so as to have a value in a range from 30μm or more to 3 mm or less. However, Watanabe teaches a disc whose eccentricity width is about 50μm. It would have been obvious to modify the discs that are taught by Yamaga and Kadowaki so that they could have an eccentricity in the said range. The modification would have been obvious

because of the benefit of adjusting width to get better control of signal fluctuation (para [0180]).

6. Claims 10-13 and 25-29 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaga et al. US 2004/0257970 A1 (Yamaga hereinafter) in view of Kadowaki et al. US 2005/0199778 A1 (Kadowaki hereinafter) as applied to claim 1 above, and further in view of Kikuchi et al. US 2003/0161255 A1 (Kikuchi hereinafter).

Regarding claims 10 and 25, Yamaga teaches a disc substrata according to claim 1, but Yamaga fails to teach a clamp area to attach an optical disc to a spindle motor is set near a center hole of said disc substrate, an inner rim diameter of said clamp area is selected from a range of 22 to 24 mm, and an outer rim diameter of said clamp area is selected from a range of 32 to 34 mm. However, Kikuchi teaches such a clamping area with diameter of innermost rim in a range of 22mm to 24mm and outer rim diameter ranging from 32mm to 34mm (see para [0061]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diameter of the clamping area of Yamaga to be in the range taught by Kikuchi. The modification would have been obvious because of ease in clamping the disc in any standard disc drive that accepts discs with specified center hole diameters.

Regarding claims 11 and 26, Yamaga teaches a disc substrata according to claim 1, wherein a non-data area to attach the disc substrata to a spindle motor, a data area to form an information signal portion, and a non-data area having the eccentricity

measuring area to measure eccentricity of the disc substrata are sequentially provided (A DVR optical disc 2 comprises a pattern 4 of fine depressions and protrusions conformed to the intended format of the disc (a first depressions and protrusions: pits and/or grooves) formed within an information recording area 6 of the disc, as well as a pattern 8 of fine depressions and protrusions for measuring the eccentricity(a second depressions and protrusions), which is formed in an area other than the information recording area, see Abstract). And it is obvious that every recording disc has clamping area as taught by Kikuchi.

Regarding claims 12 and 27, Yamaga teaches a disc substrate according to claim 1, wherein a thickness of said disc substrate is selected from a range of 0.6 to 1.2 mm, a diameter (outer diameter) of said disc substrate is equal to 80 to 120 mm (a resin substrate with an outer diameter of 120 mm, and a thickness of 1.2 mm, para [0049]), but Yamaga fails to teach an opening diameter (inner diameter) of a center hole is equal to about 15 mm. However, Kikuchi teaches an inner diameter of a center hole being 15mm (see para [0131]).

Regarding claims 13 and 28, Yamaga teaches a disc substrate according to claim 1, but Yamaga fails to teach in a system for recording onto the grooves, a distance (track pitch) between the grooves formed in a data area is equal to about 0.32 μm and a width of each groove formed in the data area is equal to about 0.22 μm (half value width). However, Kadowaki teaches optical recording medium being provided with a continuous groove to be a track, and a pitch being 0.32 (see para [0006]). It would have been obvious to one of ordinary skill in the art at the time the invention was made

to modify the optical disc taught by Yamaga to have a reduced pitch. The modification would have been obvious because of the benefit of reduced pitch in increasing recording capacity as taught by Kadowaki (see para [0010]).

Regarding claim 29, Yamaga teaches an optical disc according to claim 14, but both Yamaga and Kadowaki fail to teach that the sheet which is used to form said light transmitting layer comprises a light transmitting sheet and a PSA (Pressure Sensitive Adhesion) adhered to one surface of said light transmitting sheet. However, Kikuchi teaches that the light transmitting layer comprises: a light transmitting sheet; an adhesive layer for adhering the light transmitting sheet onto the principal plane of the substrate; and a protective layer which is provided on a surface on the side opposite to the side of the light transmitting sheet where the adhesive layer has been provided and is used to protect the light transmitting sheet (see para [0047]).

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENOK G. HEYI whose telephone number is (571)270-1816. The examiner can normally be reached on Monday to Friday 8:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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